CONTENTS OF 92B

Vol. 92B, No. 1.

General Papers

Norimasa Matsuoka and Hirobumi Suzuki 1 Genetic variation and differentiation in six local Japanese populations of the sea-urchin, *Anthocidaris crassispina*: electrophoretic analysis of allozymes

R. A. Nunamaker and C. N. McKinnon 9 Electrophoretic analyses of proteins and enzymes in *Culicoides variipennis* (Diptera: Ceratopogonidae)

Monique Vuillaume, Fréderic Ducancel, Regis Calvayrac, Thierry Rabilloud, Michelle Hubert and Max Goyffon 17 Correlations between the catalase-like activity, and the H_2O_2-ATP production of haemocyanin and its subunits; implications with the radioresistance of the scorpion *Androctonus australis*

Wilson O. Endege, John D. Lonsdale-Eccles, Norah K. Olembo, Shamshudeen K. Moloo and Onesmo K. ole-MoiYoi 25 Purification and characterization of two fibrinolysins from the midgut of adult female *Glossina morsitans* centralis

Susanne Bock, Ulrich A. Sedlmeier and Klaus H. Hoffmann 35 Metabolism of absorbed short-chain carboxylic acids by the freshwater oligochaete *Tubifex tubifex*

Takashi Maoka and Takao Matsuno 41 Metabolism of carotenoids in terrestrial snail Euhadra *callizona amaliae*

Shin-ichi Teshima, Akio Kanazawa, Shunsuke Koshio and Koji Horinouchi 45 Lipid metabolism of the prawn *Penaeus japonicus* during maturation: variation in lipid profiles of the ovary and hepatopancreas

F. A. P. Campos, J. Xavier-Filho, C. P. Silva and M. B. Ary 51 Resolution and partial characterization of proteinases and α-amylases from midguts of larvae of the bruchid beetle *Callosobruchus maculatus* (F.)

Patrick Herpin and Hervé Barré 59 Loose-coupled subsarcolemmal mitochondria from muscle *rhomboideus* in cold-acclimated piglets

Leticia Garcia-Salguero and José A. Lupiáñez 67 Long-term control on renal carbohydrate metabolism—II. Effect of starve–feed cycles on renal tubule glycolysis

P. Muje, J. J. Ågren, O. V. Lindqvist and O. Hänninen 75 Fatty acid composition of vendace (*Coregonus albula* L.) muscle and its plankton feed

Shyuichiro Inagaki and Okitsugu Yamashita 81 Delayed activation of glycogen synthase adjusted to the effective storage function of fat body in the premetamorphic instar of the silkworm, *Bombyx mori*

Kenji Sato, Reiji Yoshinaka, Yoshiaki Itoh and Mamoru Sato 87 Molecular species of collagen in the intramuscular connective tissue of fish

Gregory Beck, Gerardo R. Vasta, John J. Marchalonis and Gail S. Habicht 93 Characterization of interleukin-1 activity in tunicates

Emilio Quiñoa, Luis Castedo and Ricardo Riguera 99 The halogenated monoterpenes of *Aplysia punctata*. A comparative study

Carlo Cirotto and Ileana Arangi 103 Koelliker haemoglobins in developing chick embryo

D. A. Lovejoy and N. M. Sherwood	111	Gonadotropin-releasing hormone in ratfish (*Hydrolagus colliei*): distribution between the sexes and possible relationship with chicken II and salmon II forms
Ivan Yu. Sakharov, Irene E. Makarova and Gennadiy A. Ermolin	119	Chemical modification and composition of tetrameric isozyme K of alkaline phosphatase from harp seal intestinal mucosa
H. Van Mellaert, K. Hendrickx, M. Rans, J. Cardoen and A. De Loof	123	Characterization of a juvenile hormone binding site in the microsomal fraction of *Sarcophaga bullata* vitellogenic ovaries by means of a filter assay
Minne Casteels, Linda Schepers, Guido Parmentier, Hendrik J. Eyssen and Guy P. Mannaerts	129	Activation and peroxisomal β-oxidation of fatty acids and bile acid intermediates in liver from *Bombina orientalis* and from the rat
D. J. Van der Horst, J. M. Van Doorn, M. P. Pener, A. Th. M. Van den Broek, W. J. A. Van Marrewijk and A. M. Th. Beenakkers	133	Development of imaginal competence to adipokinetic hormone in *Locusta*: lipophorin conversions in precocene-induced adultiforms and in azadirachtin-induced over-aged nymphs
Norbert H. Haunerland and William S. Bowers	137	Comparative studies on arthropod lipoproteins
Cheng-Yie Lin, Michael G. Hughes and David J. McAdoo	143	Amino acid uptake and incorporation into cell-specific peptides and evidence for intracellular peptide pools in *Aplysia* neurons R3–R14
Mutsumi Inaba and Yoshimitsu Maede	151	Inherited persistence of immature type pyruvate kinase and hexokinase isozymes in dog erythrocytes
Patrick M. Torre and Stephen P. Oliver	157	Inhibition of bovine peripheral blood mononuclear cell blastogenesis by fractionated mammary secretion
H. Taki, J.-L. Baert and A. Dhainaut	167	Synthesis and release of vitellogenin-associated phospholipids by the coelomocytes of *Perinereis cultrifera* (Annelida, Polychaeta)
A. Lazou	175	Adenylate metabolizing enzymes in invertebrate tissues
Theodore T. Herskovits, Alexandria E. Guzman and Mary G. Hamilton	181	The haemocyanin of the whelk, *Busycon contrarium* (Conrad): aggregation states and subunit structure
Takao Matsuno and Miyuki Tsushima	189	Carotenoids of shellfishes—X. Reductive metabolic pathways of echinenone and fritschiellaxanthin in the spindle shell *Fusinus perplexus*
L. Schor and A. M. Seldes	195	Steroids from aquatic organisms—XVII. Sterol composition of the salp *Ihlea racovitzai* from the Antarctic Ocean
Ken Miura and Isamu Shimizu	197	Changes in properties in lipophorin of the silkworm, *Bombyx mori* with ontogeny
Muslim Ali, Martha Thomson, Jassim M. Al-Hassan, Jinan Al-Saleh, Sanaa Fayad, Hanan Assad and Richard S. Criddle	205	Comparative biochemical and pharmacological properties of epidermal secretions from *Ariid* catfish of the Arabian Gulf

Vol. 92B, No. 2.

Mini-Reviews

Fulvia Basaglia	213	Some aspects of isozymes of lactate dehydrogenase, malate dehydrogenase and glucosephosphate isomerase in fish
Premjit P. Halarnkar and Gary J. Blomquist	227	Comparative aspects of propionate metabolism

General Papers

Veronica B. O'Riordan and Ann M. Burnell 233 Intermediary metabolism in the dauer larva of the nematode *Caenorhabditis elegans*—1. Glycolysis, gluconeogenesis, oxidative phosphorylation and the tricarboxylic acid cycle

Vassilia Partali, Karl Tangen and Synnøve Liaaen-Jensen 239 Carotenoids in food chain studies—III. Resorption and metabolic transformation of carotenoids in *Mytilus edulis* (edible mussel)

Takashi Maoka, Sachiko Yokoi and Takao Matsuno 247 Comparative biochemical studies of carotenoids in nine species of Cephalopoda

Sheldon S. Shen and Lori A. Ricke 251 Protein kinase C from sea urchin eggs

Kazuo Shiomi, Hideo Uematsu, Hideaki Yamanaka and Takeaki Kikuchi 255 Purification and characterization of a galactose-binding lectin from the skin mucus of the conger eel *Conger myriaster*

László Dux, Gábor Lelkes, Le Huu Hieu and János Nemcsók 263 Structural differences between the Ca^{2+}-ATPase enzymes of sarcoplasmic reticulum membrane from rabbit and carp muscles

Walter Horacio Jeckel, Julia Elena Aizpún de Moreno and Víctor Jorge Moreno 271 Biochemical composition, lipid classes and fatty acids in the ovary of the shrimp *Pleoticus muelleri* Bate

Katharina Schiedt, Per Foss, Trond Storebakken and Synnøve Liaaen-Jensen 277 Metabolism of carotenoids in salmonids—I. Idoxanthin, a metabolite of astaxanthin in the flesh of Atlantic salmon (*Salmo salar*, L.) under varying external conditions

Diana M. Collins and Pamela S. Hargis 283 Distribution of fatty acid binding proteins in tissues and plasma of *Gallus domesticus*

A. A. Juknat, M. L. Kotler, G. E. Koopmann and A. M. del C. Batlle 291 Porphobilinogenase from *Rhodopseudomonas palustris*

Lidia Susana Araujo, Maria Elisa Lombardo, Maria Victoria Rossetti and Alcira M. del C. Batlle 297 *Saccharomyces cerevisiae* porphobilinogenase: some physical and kinetic properties

Thomas Brittain and Rufus M. G. Wells 303 Characteristics of a bili–protein complex in the serum of the stargazer fish (*Genyagnus novazelandiae*: Uranoscopidae) and its possible role in camouflage

Rubens Rosa, Edson Rodrigues and Metry Bacila 307 Blood glucose partition and levels of glycolytic enzymes in erythrocytes and somatic tissues of penguins

Metry Bacila, Rubens Rosa, Edson Rodrigues, Pedro Hélio Lucchiari and Claudete Deguirmendjan Rosa 313 Tissue metabolism of the ice-fish *Chaenocephalus aceratus* Loenberg

Masatoshi Mita and Nobuo Ueta 319 Fatty chain composition of phospholipids in sea urchin spermatozoa

Byung-Sun Yoo, Kang-Suk Lee, Jeong-Ho Lee and Kyu-Hwan Yang 323 The subunit heterogeneity of *Portunus trituberculatus* haemocyanin

Catherine S. E. Jewell and Gary W. Winston 329 Characterization of the microsomal mixed-function oxygenase system of the hepatopancreas and green gland of the red swamp crayfish, *Procambarus clarkii*

Hanna Jańska, Aleksandra Kubicz and Agata Szalewicz 341 The lower molecular weight acid phosphatase from the frog liver: isolation of homogeneous AcPase III and IV representing glycoforms with different bioactivity

Takeshi Kumazawa, Hiroshi Seno and Osamu Suzuki 347 Semicarbazide-sensitive amine oxidase activity in catfish tissues

Tatsuo Muramatsu, Satoshi Kuzuyama, Yosuke Aoyagi and Jun-ichi Okumura 351 A simple method for measuring immunoglobulin synthesis *in vivo* in the spleen of chicks (*Gallus domesticus*)

Milan Jirsa, Jiří Klinot, Eva Klinotová, Karel Ubik and Karel Kučera 357 Classical bile acids in animals, β-phocaecholic acid in ducks

G. I. H. Kerley 361 Electrophoretic transferrin variation in fur seals (*Arctocephalus* spp.) at Marion Island

R. M. G. Wells, B. J. Trevenen and T. Brittain 365 Adenylate energy charge and hemoglobin function in developing mouse embryos

T. V. Waehneldt, J. Malotka, S. Kitamura and Y. Kishimoto 369 Electrophoretic characterization and immunoblot analysis of the proteins from the myelin-like light membrane fraction of shrimp ventral nerve (*Penaeus duorarum*)

D. A. Holwerda, M. Veldhuizen-Tsoerkan, P. R. Veenhof and E. Evers 375 *In vivo* and *in vitro* studies on the pathway of modification of mussel pyruvate kinase

Donald C. Porter, Gary W. Moy and Victor D. Vacquier 381 The amino terminal sequence of sea urchin sperm histone H1 and its phosphorylation by egg cytosol

Leo Pezzementi, Hugh C. Nickson, Robert C. Dunn and Ronald J. Bradley 385 Molecular forms of acetylcholinesterase from the skeletal muscle of the ammocoete of the lamprey *Petromyzon marinus*

J. E. Baker 389 Interaction of inhibitor-0.12 from wheat with two amylase isozymes from the rice weevil, *Sitophilus oryzae* (Coleoptera: Curculionidae)

Fulvia Basaglia 395 The isozymes of lactate dehydrogenase, malate dehydrogenase and glucosephosphate isomerase in Italian ictalurids

Maria Elena Ibarra-Rubio, José Carlos Peña and José Pedraza-Chaverri 399 Kinetic and inhibitory characteristics of serum angiotensin-converting enzyme from nine mammalian species

T. Nakagawa and F. Nagayama 405 Enzymatic properties of fish muscle aldolase

François-Xavier Garneau, Christian Harvey, Jean-Luc Simard, John W. Apsimon, D. Jean Burnell and John H. Himmelman 411 The distribution of asterosaponins in various body components of the starfish *Leptasterias polaris*

417 **Corrigendum**

Vol. 92B, No. 3.

Review

Alan G. Clark 419 The comparative enzymology of the glutathione *S*-transferases from non-vertebrate organisms

Mini-Review

E. Olmo, T. Capriglione and G. Odierna 447 Genome size evolution in vertebrates: trends and constraints

General Papers

Tohru Suzuki and Katsuyoshi Mori 455 A galactose-specific lectin from the hemolymph of the pearl oyster, *Pinctada fucata martensii*

Emilio Carpene and Milan Vašák 463 Hepatic metallothioneins from goldfish (*Carassius auratus* L.)

R. Tzannetatou-Polymeni and A. A. Haritos 469 Physicochemical characterization and tissue distribution of esterases in two Salamandridae species (*Mertensiella luschani* and *Salamandra salamandra*)

Toshiki Enomoto, Ken-Ichiro Kakihara, Kazutaka Miyatake and Shozaburo Kitaoka	477	Occurrence and characterization of fructose 6-phosphate, 2-kinase and fructose 2,6-bisphosphatase in *Euglena gracilis*
Shin-ichi Kamiya and Kunihiko Konno	481	Calcium binding and calcium-sensitivity of heavy meromyosin and subfragment-1 from squid (*Todarodes pacificus*) mantle and scallop (*Patinopecten yessoensis*) adductor muscles
Daniel Carrasco, Catherine C. Allende and Jorge E. Allende	487	Factors that regulate the activity of the phosphatidylinositol kinase present in oocyte membranes of *Xenopus laevis*
H. J. Mersmann	493	Lipolytic activity of porcine adipose tissue after preincubation
Phillip J. Sharp, Sandra L. Berry, Ian Spence and Merlin E. H. Howden	501	A basic phospholipase A from the venom of the Australian king brown snake (*Pseudechis australis*) showing diverse activities against membranes
J. E. Sewell, S. K. Davis and P. S. Hargis	509	Isolation, characterization, and expression of fatty acid binding protein in the liver of *Gallus domesticus*
A. K. Al-Ali, H. Al-Husayni, Ahmed Al-Mutairy, R. Saba and D. M. Power	517	A study of the biochemical characteristics of $NADP^+$ isocitrate dehydrogenase from the liver and kidney of the Arabian camel (*Camelus dromedarius*)
Patrice Audy, Jean Grenier and Alain Asselin	523	Lysozyme activity in animal extracts after sodium dodecyl sulfate-polyacrylamide gel electrophoresis
Jack S. Frankel	529	Allelic expression at the sorbitol dehydrogenase and glucose-phosphate isomerase loci in an interspecific hybrid ricefish
Masahiro Aihara, Hiroaki Kasukawa, Ryozo Fujii and Noriko Oshima	533	Chemical characterization of reflecting platelets in motile iridophores of blue damselfish
Nobuhiro Mori and Hisayoshi Sugihara	537	Comparative study of two arginine ester hydrolases, E-I and E-II from the venom of *Crotalus ruber ruber* (red rattlesnake)
V. L. Christensen and F. W. Edens	549	Blood plasma catecholamine concentration of poult embryos during the transition from diffusive to convective respiration
Karla M. Johanning and Terence M. Bradley	555	Plasma protein changes in Atlantic salmon (*Salmo salar*) during parr–smolt transformation
Paul E. Walton, Robert C. Baxter, B. Dan Burleigh and Terry D. Etherton	561	Purification of the serum acid-stable insulin-like growth factor binding protein from the pig (*Sus scrofa*)
K. M. Dziegielewska, M. Habgood, S. E. Jones, M. Reader and N. R. Saunders	569	Proteins in cerebrospinal fluid and plasma of postnatal *Monodelphis domestica* (grey short-tailed opossum)
Haruhiko Toyohara and Yasuo Makinodan	577	Comparison of calpain I and calpain II from carp muscle
Hla Hla Htay, Keizo Sato, Keiji Tamaki, Hajime Tsutsumi and Yoshinao Katsumata	583	Comparative immunology of mammalian uricase using anti-hog liver uricase
R. M. G. Wells, B. J. Trevenen and T. Brittain	587	Organic phosphate–hemoglobin interactions appear non-adaptive in the hypoxic toad, *Bufo marinus*

Vol. 92B, No. 4.

General Papers

Michèle Durliat and Roger Vranckx	595	Relationships between plasma and hemocyte proteins in Decapoda
Steve Miller and Sonja Thornton	605	Isolation and characterization of histones from *Anopheles albimanus* Weidemann

Masamichi Oh-Ishi and Tamio Hirabayashi	609	Comparison of protein constituents between atria and ventricles from various vertebrates by two-dimensional gel electrophoresis
Ioannis Constantinidis, Richard L. Kandler and James D. Satterlee	619	Purity of *Glycera dibranchiata* monomer hemoglobin components III and IV determined by isoelectric focusing
J. E. Sewell, C. R. Young, S. K. Davis and P. S. Hargis	623	Isolation and characterization of two fatty acid binding proteins from intestine of *Gallus domesticus*
D. Giesecke, S. Gaebler and M. Stangassinger	631	Quantification and kinetics of purine catabolism in Dalmatian dogs at low and high purine intakes
M-Christiane Brahimi-Horn, Maria L. Guglielmino, Lindsay G. Sparrow, Raymond I. Logan and Peter J. Moran	637	Lipolytic enzymes of the digestive organs of the crown-of-thorns starfish (*Acanthaster planci*): comparison of the stomach and pyloric caeca
Marie-Hélène Hannothiaux, Andrée Scharfman, Didier Leger, Edwige Van Brussel, Jean-Jacques Lafitte and Philippe Roussel	645	Identification of plasma proteins contained in bronchoalveolar fluid from *Macacus cynomolgus*
Yára M. Michelacci and Denise S. P. Q. Horton	651	Proteoglycans from the cartilage of young hammerhead shark *Sphyrna lewini*
R. Rosebrough, J. McMurtry and N. Steele	659	Dietary propylthiouracil and 17β-estradiol benzoate implant effects on liver carbohydrate and lipid metabolism in chicks
Pamela M. Burton and Y. Melody Chiou	667	Isolation, characterization and quantification of apolipoproteins A-1 and B of the Golden Syrian hamster (*Mesocricetus auratus*) and modification of their levels by dietary cholesterol
J. T. Billheimer, J. R. Landrey and R. L. Conner	675	The presence of acyl-CoA: cholesterol acyltransferase in *Tetrahymena pyriformis W*
Srdjanka Tomić, Ljubica Sesartić and Jelka Tomašić	681	Enzymatic deacylations of esterified saccharides—III. Comparison of de-esterifications by serum esterases from different sources
Bruce I. Gaynes and John B. Watkins III	685	Comparison of glucose, sorbitol and fructose accumulation in lens and liver of diabetic and insulin-treated rats and mice
Koei Hamana, Masashi Suzuki, Takeyuki Wakabayashi and Shigeru Matsuzaki	691	Polyamine levels in the gonads, sperm and salivary gland of cricket, cockroach, fly and midge
Heinz J. M. Hansen and S. Abraham	697	Compartmentation of gluconeogenesis in the fasted eel (*Anguilla anguilla*)
Marylène Hublart, Lucia Mendonça-Previato, François Boutignon, Guillemette Huet-Duvillier and Pierre Degand	705	Evidence of myristylated disulfide-linked dimer of variant surface glycoprotein of *Trypanosoma brucei-brucei*
Uffe Anthoni, Charles Larsen, Per H. Nielsen, Carsten Christophersen and Göran Lidgren	711	Hydrophilic organic nitrogenous metabolites from marine bryozoans
Haruhiko Toyohara, Masato Kinoshita, Yasuo Makinodan and Yutaka Shimizu	715	Effect of NaCl on the heating activation of the heat-stable alkaline proteinases from various animal muscles
Michèle Regnault	721	Glutamate dehydrogenase (GDH) in the cheliped muscle of the crab *Cancer pagurus* L.—effect of a prolonged starvation

J. Karasiński and W. Kilarski	727	Polymorphism of myosin isoenzymes and myosin heavy chains in histochemically typed skeletal muscles of the roach (*Rutilus rutilus* L., Cyprinidae, fish)
Valery M. Dembitsky, Irina A. Gorina, Irina P. Fedorova and Marina V. Solovieva	733	Comparative investigation of plasmalogens, alkylacyl and diacyl glycerophospholipids of the marine sponges (type Porifera, class Demospongiae)
M. Sanchez-Moreno, M. A. Garcia-Ruiz, A. Sanchez-Navas and M. Monteoliva	737	Physico-chemical characteristics of superoxide dismutase in *Ascaris suum*
J. Nunez Rodriguez, O. Kah, M. Geffard and F. Le Menn	741	Enzyme-linked immunosorbent assay (ELISA) for sole (*Solea vulgaris*) vitellogenin
Richard D. Tkachuck, Gary D. Rosenberg and W. William Hughes	747	Utilization of free amino acids by mantle tissue in the brachiopod, *Terebratalia transversa* and the bivalve mollusc, *Chlamys hastata*
Fausto Panara and Rita Pascolini	751	Acid phosphatases from liver of *Cyprinus carpio*
Marco Vincenzo Piretti, Roberto Pistore and Giampiero Pagliuca	755	Uptake and utilization of lipid constituents, dispersed in culture water, by the bivalve mollusc *Scapharca inaequivalvis* (Bruguiere)
Philip W. Wertz and Donald T. Downing	759	Integral lipids of mammalian hair
L. Armbruster, M. Dauca and A. M. Bautz	763	Stage-specific polypeptides in *Calliphora erythrocephala* hemocytes during metamorphosis
J. Gorsline, D. J. Morris and W. N. Holmes	773	Metabolism of aldosterone in the colostomized duck (*Anas platyrhynchos*): partial characterization of urinary metabolites
M. Hatch and J. P. Geaghan	779	Oxidative metabolism of rabbit and rat intestine with short chain fatty acids and glucose: an evaluation of data analysis
Rodolfo Amthauer, Julieta Villanueva, Maria Ines Vera, Margarita Concha and Manuel Krauskopf	787	Characterization of the major plasma apolipoproteins of the high density lipoprotein in the carp (*Cyprinus carpio*)